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Training Agenda

- Section 1: Pandemic Influenza 101
 - Influenza types
 - Pandemic influenza impact
 - Antivirals and vaccines
 - Non-pharmaceutical interventions
 - Alternate care sites/facilities
- Section 2: Preparedness and Response for CERTs
- Section 3: Personal Protective Equipment for CERTs

Explain that there are three sections in this PowerPoint training.

Training Objectives

- Describe the differences of seasonal, avian and pandemic H1N1 influenza
- Identify steps how to prepare a household for pandemic influenza
- Describe the function of CERTs and potential roles during a pandemic influenza
- Explain personal protective equipment (PPE) for CERTs

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Section 1: Pandemic H1N1 Influenza 101



Photo: CDC

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What is a pandemic?

- A **pandemic** is a global disease outbreak. A flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity and for which there is no vaccine.
- The disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in very short time. An influenza pandemic may be caused by either swine (pig) or avian (bird) flu viruses.

Phase 6 Pandemic

- On June 11th, 2009, WHO (World Health Organization), Director General, Margaret Chan declared a Phase 6 Pandemic due to sustained worldwide human-to-human transmission of the A/H1N1 flu virus.
- At that time, WHO considered the overall severity of the influenza pandemic to be moderate. This assessment was based on scientific evidence available to WHO, as well as input from its Member States on the pandemic's impact on their health systems, and their social and economic functioning.

Why prepare for a pandemic?

- The effects of a pandemic can be lessened if preparations are made ahead of time. Federal, State and local agencies have been actively planning and preparing for a pandemic for several years.
- During the course of this training you will learn what a pandemic is, how you can protect yourself and your family, and lastly how you can provide help to your local emergency response agency with the support they will need from trained volunteers such as CERTS.

Seasonal, Avian, and Pandemic H1N1 Influenza

- **Seasonal influenza**
 - Winter months in temperate zones; year-round activity in the tropics which can be Influenza A and/or B
- **Avian influenza**
 - Literally, “bird flu” - natural influenza A disease affecting birds
 - May occasionally or “accidentally” infect humans - not the natural host
- **Pandemic H1N1 influenza**
 - Influenza A virus
 - Novel (new) influenza strain that humans have no or little immunity against
 - Efficient human-to-human transmission
 - Widespread (global)

Influenza virus



Mode of transmission: primarily close contact via large droplets i.e., coughing, sneezing, talking; fomites may play a role.

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- Incubation 1-4 days, 2 days on the average
- Communicability 3-8 days
- 1 day before to 3-7 days after symptoms (you can start being contagious before symptoms appear)
- Mode of transmission-Respiratory – breath in virus
- Or touch surface contaminated by virus droplet with hands and touch face, rub eyes, or nose and you're sick.
- Fomites may play a role, they are inanimate objects that carry disease-causing germs that spread infections. Fomites are one of the most common ways that kids get sick. Diseases that spread by droplet transmission, fecal-oral transmission, or contact transmission often do so by means of fomites. A fomite can be anything (such as a cloth or mop head), so when cleaning, it is important to remember that such items could aid the spread of pathogenic organisms.

Mode of Transmission



Photo: CDC

- Primarily close contact – large droplets spread by coughing, sneezing, talking

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Influenza Symptoms

- Rapid onset of:
 - Fever (100° or greater)
 - Chills
 - Body aches
 - Sore throat
 - Non-productive cough
 - Runny nose
 - Headache
- Children may present with gastrointestinal (stomachache) symptoms



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- The symptoms of influenza include fever, chills, body aches, sore throat, non-productive cough, runny nose, and headache. The hallmark of influenza is the sudden onset of symptoms.

Seasonal Influenza is a serious illness

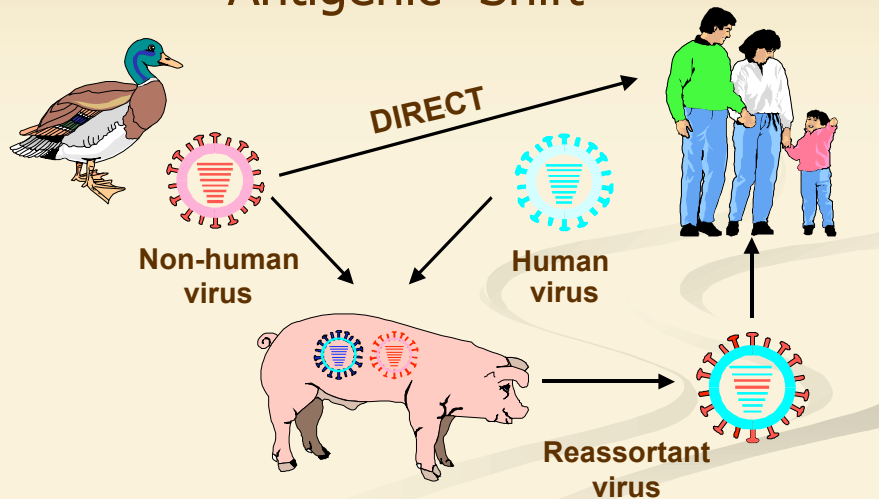
- Annual deaths: 36,000*
- Hospitalizations: >200,000*
- Who is at greatest risk for serious complications?
 - persons 65 and older
 - persons with chronic diseases
 - infants
 - pregnant women
 - nursing home residents

* Average annual national estimates during the 1990's

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- Influenza can be a very serious illness—each year approximately 36,000 persons die as a result of complications of influenza and over 200,000 are hospitalized.
- The persons who are at greatest risk of experiencing severe complications of influenza, such as pneumonia, dehydration, or worsening of chronic lung and heart problems, are persons 65 and older, persons with other chronic medical conditions, such as lung or heart disease, or diabetes, infants, pregnant women, and nursing home residents.

Mechanisms of Influenza Virus Antigenic "Shift"



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- Pigs can carry both the avian and human influenza viruses which can result in a reassortment of the virus. Humans would not have immunity to the new virus leading us vulnerable to a pandemic

Avian Influenza

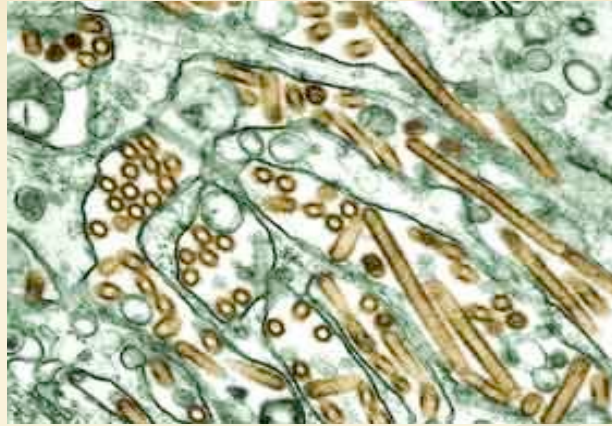


Photo: CDC

Avian Influenza A/(H5N1) in humans

- Mostly rural and semi-rural households with small flocks of poultry
- Few cases in commercial poultry workers, veterinarians and healthcare staff
- Most cases have been in previously healthy children & young adults
- Limited human to human spread
- Symptoms can vary from person to person, and the illness can result in death

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- H5N1 is current strain of type “A” influenza (same type that causes seasonal flu) circulating around the world.
- Can be deadly to humans
- But need direct contact with infected bird fluids/wastes to become infected

Pandemic H1N1 Influenza

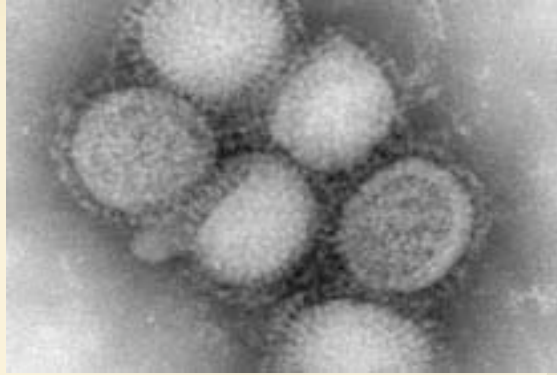


Photo: CDC

Pandemic H1N1 Influenza

- Early symptoms of H1N1 influenza include;
 - Fever (100° or greater)
 - cough
 - headache
 - muscle and joint pain
 - sore throat and runny nose
 - sometimes vomiting or diarrhea
- In 2009, according to the CDC, the average age of those hospitalized with H1N1 were 17 years old
 - The largest number of cases in people between the ages of 5 and 24
 - There are very few cases of H1N1 pandemic flu reported in people older than 64



Photo: CDC

In children, some will have vomiting and diarrhea.

There is theory that the older population might have been exposed to H1N1 at some point in their lives and have some resistance against the virus. The younger population is at most risk since this is a brand new virus they have never had exposure to.

History of Pandemics

Years	Flu	Virus	Mortality
1918-1919	"Spanish"	Type A (H1N1)	550,000 US
1957-1958	"Asian"	Type A (H2N2)	70,000 US
1968-1969	"Hong Kong"	Type A (H3N2)	34,000 US
2009-???	"Swine"	Type A (H1N1)	still counting

- In the last century we have seen four major influenza pandemics

Influenza Pandemic: Impact

- Not typical health emergency
 - Longer duration than other emergency events
 - ALL segments of population affected including healthcare workers and first responders, and other essential service workers
 - Simultaneous, rapid spread of disease worldwide
 - Significant economic and social consequences

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- It is important to COMPARE A PANDEMIC TO OTHER EMERGENCY EVENTS such as hurricane Katrina
- Damage was LOCALIZED TO ONE REGION and occurred over a NUMBER OF HOURS.
- AFTER EFFECTS of Katrina are still being felt not only in the AFFECTED REGION, but NATIONALLY AND GLOBALLY as well
- In contrast, a pandemic would have a LONGER DURATION STILL
- Waves: where DISEASE IN ONE PORTION of the population gradually DECLINES only to be FOLLOWED BY AN INCREASE in disease activity in ANOTHER PART of the population
 1. They too will be affected by high-risk for illness through exposure and some may need to miss work to care for ill family members
 2. Multiple worldwide sites might be affected simultaneously, reducing the ability of countries to provide aid to one another

In a severe panic *"We're On Our Own"*

- Limited or no assistance from State and Federal governments
- Disruption of transportation, business, utilities, public safety and communications
- "Social distancing" may include closing schools, and canceling public events



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- No assistance from state and local governments because personnel at all government levels will be sick as well.
- Disruption of everything- food, transportation, etc.

Pandemic Influenza: National Preparedness Strategies

- Early detection, surveillance
- Vaccine development and distribution
- Stockpiling of antivirals
- Federal guidance for the development of state and local emergency response plans



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- EARLY DETECTION OF Animal or human outbreaks throughout world: formed INTERNATIONAL PARTNERSHIP requiring countries experiencing outbreaks to IMMEDIATELY SHARE information/lab samples to World Health Organization
- VACCINE DEVELOPMENT and stockpiling: Developing technique of REVERSE GENETICS for faster vaccine production
- STOCKPILING ANTIVIRALS enough to treat first responders (including health care providers), highest risk patient groups
- Requiring states complete and exercise pandemic plans, ensure ADEQUATE MEDICAL PERSONNEL AND SUPPLIES

Influenza Antiviral Medications

- Two antivirals are currently being prescribed for H1N1: Tamiflu (oseltamivir) is a pill, while Relenza (zanamivir) is inhaled.
- Strategic National Stockpile has acquired Tamiflu, but supply will likely be inadequate in a severe pandemic.
- Health Officer may issue community-wide directives for the use of influenza antivirals in a pandemic, consistent with CDC guidelines.
- If taken within the first 48 hours of symptoms, the antivirals can help shorten the duration of illness.

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- Pharmaceutical companies are working on new antivirals and vaccines. Tamiflu is the preferred treatment to date.

Influenza Vaccine: Seasonal & H1N1

- CDC encourages the general public to get the seasonal flu vaccine.
- The H1N1 vaccine will be available in the fall of 2009 and at first will be prioritized to those who fall into the following certain risk categories:
 - Children & young adults 6 months – 24 years of age
 - Caregivers of children less than 6 months old
 - Pregnant women
 - First responders/Hospital employees (face-to-face contact with patients)
 - Individuals with certain medical conditions

(for more information see CDC)

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- Depending on CDC and HHS protocols, mass vaccination may not be appropriate during a pandemic due to the low supply of the vaccine and the need to prioritize groups to receive it when it's available.

Non-Pharmaceutical Interventions

Individual/Household

- Hand hygiene
- Cough etiquette
- Isolation of ill
- Home care plan
- Cleaning/disinfecting
- Facemasks/gloves
- Emergency Preparedness Kit

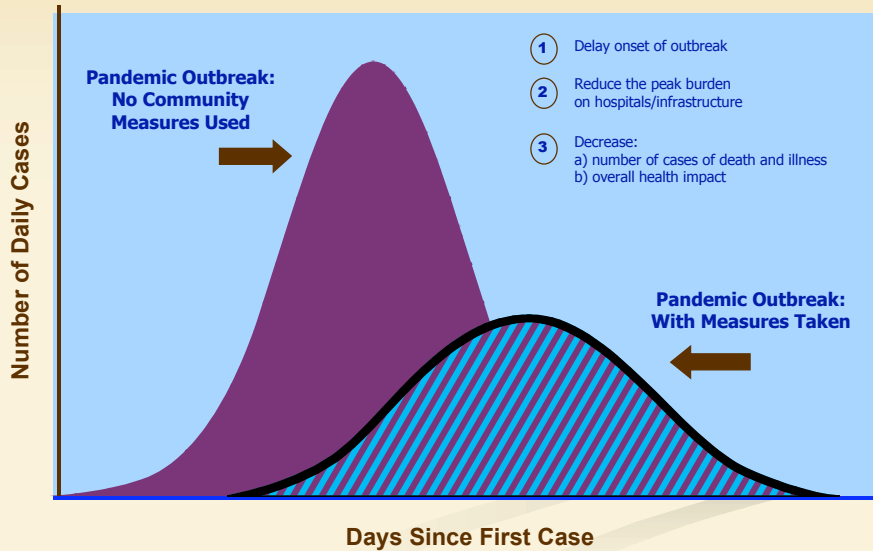
Community

- Surveillance
- Isolation of ill
- Quarantine of exposed
- School closure
- Protective sequestration of children
- Social distancing
 - Community
 - Workplace
- Travel restrictions

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- Because of the time required to increase vaccine production and because of both the limited supply of antivirals and the unknown usefulness, various social distancing measures, may be the primary intervention for some part of the pandemic.
- These points are from the CDC Community Mitigation Plan to help control the spread of the disease
- School closure would mean closing the school entirely, including the facility.
- Protective sequestration of children begins before children are actually sick. It is a dismissal of students from school, and prohibits them from congregating in large numbers as a preventative measure. The school facilities themselves could be used as a community resource.

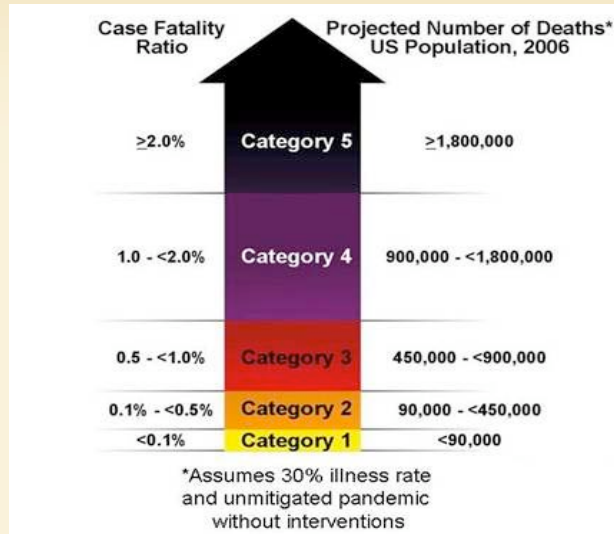
Goals of Community Measures



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- Limit the number of people who get sick
- Preserve essentials services
- Minimize social disruption
- Public education-preparedness

The Pandemic Severity Index



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- Future pandemics will be assigned to one of five discrete categories of increasing severity (Category 1 to Category 5).
- The Pandemic Severity Index provides communities a tool for scenario-based contingency planning to guide local pre-pandemic preparedness efforts. Accordingly, communities facing the imminent arrival of pandemic disease will be able to use the pandemic severity assessment to define which pandemic mitigation interventions are indicated for implementation.

Severe Pandemic Impact on the Health Care System

- Extreme staffing and bed shortages
- Shortage of key supplies and critical equipment (ventilators)
- Hospital morgues, medical examiner and mortuary services overwhelmed
- Demand will outpace supply for months (waves of illness lasting 1-2 years)
- Antivirals in very short supply
- Vast numbers of ill taken care of at home by family members

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- Not enough beds
- Health care providers also sick
- Supplies will be short
- Need to take care of sick at home-part of plan to educate community.
- Pandemics come in waves, comes and goes as was the case of 1918 pandemic, lasted 1 _ to 2 years
- The majority of people will be cared for at home!

Medical Surge Capacity

- Medical surge capacity refers to the ability a health care facility has to evaluate and care for a markedly increased volume of patients - one that challenges or exceeds normal operating capacity.
- The surge requirements may extend beyond direct patient care to include such tasks as extensive laboratory studies or epidemiological investigations.
- In a severe pandemic, most areas will experience a shortage of hospital beds within the first weeks of the initial wave.

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Because of its relation to patient volume, most current initiatives to address surge capacity focus on identifying adequate numbers of hospital beds, personnel, pharmaceuticals, supplies, and equipment.

Estimates for a “Major” Pandemic (Category 5 – like Hurricane Katrina)

- **Clinical attack rate: 25-35%**

- Hospitalizations (estimated)

- US: 9.9 – 16.5 million

- **Case fatality rate: > 2%**

- Deaths (estimated)

- Worldwide: 20-80 million

- US: 1.8 –3.7 million deaths



Photos: CDC

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- CDC has recently released a classification scheme for pandemics using a scale of 1-5 as we do to measure the severity of hurricanes. The 1918 pandemic would be a Category 5 – so we want to plan for this worst-case scenario.
- It is estimated that up to 16 million people will be hospitalized given this scenario. Hospitals are required to have surge plans in place, as well as public health departments nationwide. These plans will help to ensure that the sick are cared for either in a hospital or in an alternate care site/facility.
- **450,000 to 630,000 illnesses in SCC** over a 12-month period

Levels of Care*

Home Care



Most people will be cared for at home by other household members

Alternate Care Sites/Facilities



Patients who are too sick to be home and need intermediate care. This facility may vary by state.

Hospital Care



Those who are very sick and need ventilators will be cared for at hospitals.

*Check with your local health department to get specific information regarding levels of care

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- Critical Care: Ventilators, Ancillary Services
- Intermediate (minimally staffed with physicians and nurses)
- Isolation, Oral Hydration, Oral Antibiotics

Examples of Local Public Health Containment Measures

- Declaration of Emergency
- Quarantine: Early On
- Isolation: Within all healthcare settings including home
- Personal Protection:
 - Cough etiquette, hand-washing
 - Masks
- Social Distancing (severe pandemic)
 - Closing schools
 - Limiting public gatherings



Photo: CDC

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Isolation & Quarantine – Explain what they mean & refer to fact sheet

- Isolation is for people already ill. They are physically separated from others. They may be isolated in their homes, hospitals or other healthcare settings.
- Quarantine is for people who have been exposed but are not sick. They are physically separated from others. Since a pandemic spreads easily and quickly, quarantine may only be effective at the start to help slow the spread.

Social Distancing – Explain concept and refer to fact sheet

- An action taken by health officials to stop or slow down the spread of a highly contagious disease.
- The health officer has legal authority to order social distancing measures.
- Huge impact on community and assistance will be needed from cities, police departments, schools and state and federal partners.

Public Education Posters



Available to download at: www.sccphd.org/panflu

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- Posters from the PHD Education campaign to keep the message in the community about limiting the spread of germs by covering your cough or sneezes and washing your hands.

Section 2: H1N1 Planning & Response for CERTs



Photo courtesy of the City of Santa Clara Home Emergency Assistance Teams (HEAT) Citizens' Academy program which is sponsored through a partnership between Santa Clara City Officials, Fire Department Staff, and Firefighters' Local Union #1171 for the citizens of Santa Clara, California.

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Limiting The Spread of Disease: What Individuals Can Do

Practice, Prepare, and Help Limit the Spread of Disease

- Wash your hands
- Practice good respiratory hygiene: Cover your cough and sneezes
- When sick, stay home and away from others
- Don't send sick kids to school or daycare
- Avoid close contact with people who are sick
- **Stay Healthy!**



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- Emphasize these actions will help slow the spread of the disease.

Keeping Your Home Germ Free

Keep the household environment clean:

- On a daily basis, clean surfaces and commonly shared items like microwaves, refrigerator handles, phones, remote controls, doorknobs and handles, toilet seats and handles, faucets, light switches, and toys.
- Use a labeled household disinfectant or chlorine bleach mixture:
 - Store brand chlorine bleach can be used as a disinfectant by mixing cup bleach with 1 gallon cool water.

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Coughing and Sneezing Safely

Cover noses and mouths when sneezing or coughing:

- Remind children and others to cover their noses and mouths with a tissue when sneezing or coughing, or to sneeze or cough into their sleeves. Put used tissues in a wastebasket, and then wash hands with soap or use an alcohol-based rub.
- Even when a person is wearing a mask, they should cough or sneeze into their sleeve.



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Monitor Household Members

- Watch all household members for symptoms of respiratory illness:
- Contact your healthcare provider if a fever or other symptoms such as chills, cough, sore throat, headache, or muscle aches develop.



Photo: CDC

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Pandemic Influenza Be Prepared!

Prepare or Adapt your own Emergency Preparedness Kit

- Two weeks of food and water
- Two weeks worth of prescription medicines and ibuprofen or acetaminophen (Tylenol®)
- Rehydration solution for adults and for kids (Pedialyte®)
- Cell phone and charger (home & car)
- Supply of facemasks and gloves
- Disinfectants and chlorine bleach

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- Since so many could get sick, services and supplies we count on may not be available...you could be on your own.

Pandemic Influenza Personal Preparedness

The following checklists can be used to help you plan what type of emergency supplies you will need and what quantities to buy for your household. It is a good idea to gradually buy items now for each person in your home so that you have at least a two-week supply on hand.

- **Emergency Supplies Checklist**
- **Home Care Supplies Checklist**
- **Food Supplies Checklist**

Download at: www.sccphd.org

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- New checklist provided by the public health department
- Instruct students to refer to the sample checklist in their packets

How CERTs can help in a pandemic

- Assisting with community preparedness by organizing neighborhoods to respond to a Pandemic
- Assisting staff in the Alternate Care Sites/Facilities
- Coordinating with MRC
- Assisting in maintaining Essential Services – verify they are operational
- Distributing food to those in home isolation or who are otherwise homebound
- Distributing locally developed fact sheets and resource lists in your neighborhoods
- Helping to disseminate critical information, including the availability of resources, in your area during a Pandemic

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- Identify ways you could help organize your neighborhood to prepare for a pandemic.
- Team up with your local neighborhood associations and identify ways to distribute the Pandemic Flu Pocket Guide in the community, either through door-to-door canvassing or distribution at neighborhood meetings

CERT Response Continued

- Assisting vulnerable populations
 - Elderly
 - Non-English speakers (if you speak their language)
 - Day care support
 - Special needs/disabled
 - Homeless
- Meet with your local public health agency to learn ways your CERTs can help

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- Understanding your city and neighborhood demographics will help in determining where your assistance will be most useful.

Section 3: Personal Protective Equipment (PPE) for CERTs



Working in the Community During a Pandemic

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Use a Mask When *Unsure* if Person/public Has Been Exposed

Surgical Mask Placement Procedure

- Place mask (*color side facing out*) over nose and mouth
- Separate top and bottom edges
- Using two fingers, press the top of the nasal bridge to secure the fit



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For CERTs Assisting Individuals with *Suspected* Pandemic Influenza

- In the event that you volunteer to work in direct contact with an individual with suspected pandemic influenza, the proper mask to use would be an N-95 respirator or better.
- As a volunteer you can elect to buy an N-95 and use it for your protection and do your own fit test.

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Trainer: Use the N95 masks provided to demo the use of this mask

An N95 respirator is one of nine types of particulate respirators. Respirator filters that remove at least 95 percent of airborne particles during “worst case” testing using the “most-penetrating” size of particle are given a 95 rating.

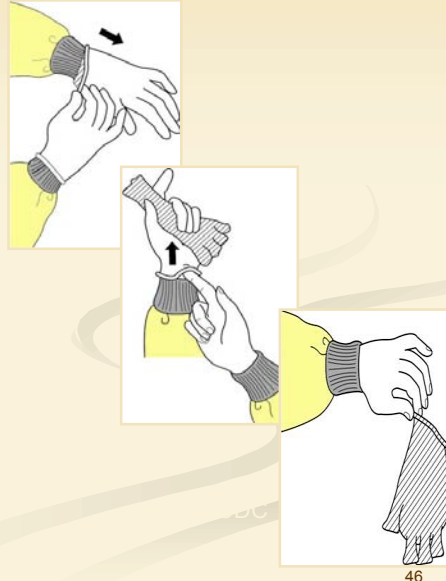
Proper Steps in Removing PPE

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Glove Removal

- Grasp outside edge near wrist
- Peel away from hand, turning glove inside-out
- Hold in opposite gloved hand
- Slide ungloved finger under the wrist of the remaining glove
- Peel off from inside, creating a bag for both gloves
- Discard



- Trainers demo glove removal, pass gloves to every student and ask them to practice using correct removal procedures

Remove Mask

- Touch only the elastic
- Discard mask – do not reuse
- Wash your hands immediately



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- Mask will be the last of your PPE to be removed

Additional Infection Control Precautions

- Clean the steering wheel and any hard surfaces you may touch with wipes.
- Place a garbage bag in the rear seat so you can place waste into it.



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- Keeping your car clean will help to limit the spread of germs

What Can a CERT Member Do To Prevent Exposure?

- Stay informed -listen to the news, monitor the web
- Stop germs from spreading
 - Wash your hands often, using soap & water or 60% alcohol based hand cleaner.
 - Cover your mouth and nose with tissue when coughing or sneezing, or use your sleeve.
 - Respect personal space and keep a 3 to 5 foot distance, large droplets don't generally travel more than that distance.
 - Always wash your hands for at least 20 seconds after handling a patient.
 - Stay home when you are sick, stay away from others to avoid infecting them.

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- Useful websites at the end of the presentation
- Stop germs from spreading to protect yourself, loved ones and other people

Stay Informed!

- Web Resources:
 - www.sccphd.org
 - www.pandemicflu.gov
 - www.naccho.org
 - www.cdc.gov
 - www.who.int
 - www.fda.gov
 - www.redcross.org

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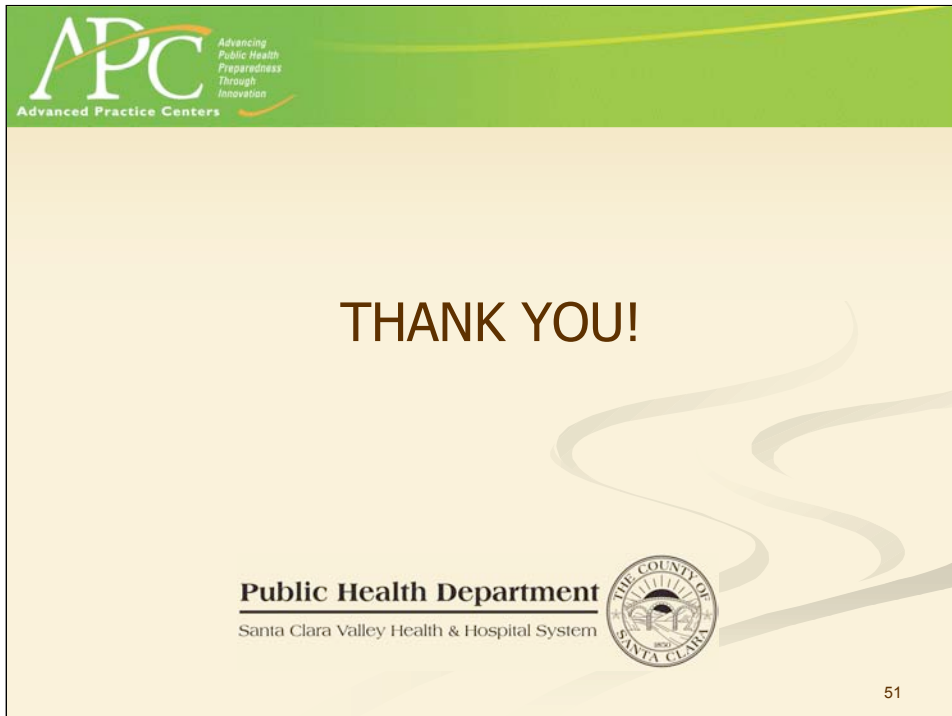
www.sccphd.org for Fact Sheets and Your Guide for Preparing for Pandemic Influenza.

www.cdc.gov for general information about pandemic flu and other health related issues.

www.cdc.gov/business for information about pandemic flu business planning.

www.fda.gov for information about personal protective equipment.

www.redcross.org for information on what you need to make an emergency preparedness plan and kit.



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